

COMMONWEALTH OF MASSACHUSETTS

DEPARTMENT OF TELECOMMUNICATIONS AND ENERGY

D.T.E. 03-121

PREFILED DIRECT TESTIMONY OF

ELAINE SAUNDERS

MARCH 16, 2004

Direct Testimony of Elaine Saunders
On Behalf of The Energy Consortium
D.T.E. 03-121

Q. Please state your name and address.

A. My name is Elaine Saunders and I work as an independent consultant at 14 Riverside Street, Watertown, Massachusetts.

Q. What are your qualifications?

A. I have worked as an independent consultant in the areas of utility rates and cost of service since April 2001. Prior to that I was employed as a Consultant at LaCapra Associates. I also worked at Boston Edison Company in a variety of positions, including Division Manager in the Rate & Load Research Department. My resume is attached as Attachment A.

Q. On whose behalf are you testifying?

A. I am testifying on behalf of the Energy Consortium ("TEC"), a group of large customers in NStar's service territory. This group includes Harvard University, Massachusetts Institute of Technology, Polaroid, Shaw's Supermarkets and Acushnet Golf. Many of these customers currently either have their own generation or are contemplating the installation of generation facilities in the future. Together, this group is a significant stakeholder in these proceedings in which NStar Electric is proposing standby rates for customers' generation in the service territories of Boston Edison Company, Cambridge Electric Light Company and Commonwealth Electric Company ("the Companies").

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Q. What is the purpose of your testimony?

A. I will address several rate design and cost causation concerns I have with NStar’s proposal. First, the proposed standby rates discriminate against customers with their own generation in that they apply to customers with generation facilities, but do not apply to customers with similar load characteristics. Second, I disagree with Mr. LaMontagne, NStar’s witness, in his assessment of the nature of the electric distribution system as “predominately fixed”. Third, I will point out various flaws in the proposed rate design. After reviewing Mr. LaMontagne’s testimony, I have concluded that the Department should not approve any of the proposed standby rates.

Q. Please briefly describe the Company’s proposed tariffs.

A. NStar is proposing rates for its three subsidiary electric companies for customers who satisfy all or a portion of their electric loads from their own generation units with a combined capacity greater than 60 kilowatts. The Companies would establish a Contract Demand level that is equal to the generation capacity or the expected output of the unit(s). Customers would then be billed for this capacity at the distribution charge contained in the otherwise applicable general service rate. Additionally the customer would be billed for Supplemental Service under the applicable general service rate for all usage metered by the Company. During periods when a customer’s generation is out or is operated at less than the Contract Demand, the Company would (a) calculate the difference between the Contract Demand and the actual output of the customer’s generation for the period, and (b) subtract the difference from the Supplemental Service demand for the same period, but not

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1 more than the metered usage. The rates would apply to customers taking service under the
2 large and medium general service classes who install generation facilities after the effective
3 date of the rate.

4
5 **Q. Please explain why you think that these proposed standby rates unfairly discriminate**
6 **against customers with generation facilities.**

7 A. In past orders issued by the Department regarding standby or backup rates, the Department
8 has found that an electric company cannot discriminate by treating customers with similar
9 loads differently. See, e.g., *Boston Edison Company*, D.P.U./D.T.E. 92-92, at 58 (October
10 30, 1992); *Boston Edison Company*, D.P.U./D.T.E. 85-266-A/85-271-A, at 275 (June 26,
11 1986). But in its filing, the Companies have made no showing that customers with
12 generation impact the distribution system in a way unique to those customers. Mr.
13 LaMontagne has stated without evidence that customers who generate their own electricity
14 cause the Company to “incur transmission and distribution costs in order to be ready to
15 serve the customer on an instantaneous basis in the event backup distribution service is
16 required.” (Page 12, lines 18-21). It is the Companies’ contention that the “intermittent
17 nature of the demands of standby customers” warrants special charges in addition to the
18 rates paid by all other customers. (Page 17) If the demands are “intermittent” then one
19 would expect that the load profiles of those customers to be spiked or radically vary from
20 month to month, depending on the availability of their generation.

21
22 **Q. Have you examined the load characteristics of customers with generation as**
23 **compared to other customers?**

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A. Yes. In informal negotiations with Massachusetts Electric Company ("MECo") regarding standby rates in 1999, TEC obtained data showing, for a one year period, the ratio of customers' smallest billing demand compared to the largest billing demand for all customers on its G-3 rate for large customers, in which customers with generation are identified. Customers with a low ratio have great variation in the demands they impose on the utility's distribution system across the year. Customers with a high ratio incur roughly the same demands from month to month. This information is summarized in the table below:

Min/Max Ratio		All G-3	% Total	Cogens	% Total
From:	To:				
0%	10%	48	2.3%	2	8.3%
11%	20%	57	2.7%	3	12.5%
21%	30%	57	2.7%	1	4.2%
31%	40%	90	4.3%	0	0.0%
41%	50%	148	7.0%	0	0.0%
51%	60%	261	12.4%	2	8.3%
61%	70%	412	19.6%	1	4.2%
71%	80%	520	24.7%	6	25.0%
81%	90%	415	19.7%	7	29.2%
91%	100%	<u>96</u>	<u>4.6%</u>	<u>2</u>	<u>8.3%</u>
		2,104	100.0%	24	100.0%

The data clearly show that in this rate class, there is a wide variation in usage patterns for all customers. The minimum to maximum ratio for all G-3 customers spans the full spectrum from less than 10 percent to greater than 90 percent. Thus, there are many customers in MECo's service territory who could be described as having intermittent loads.

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1 The table also shows the same information for customers with generation. Again, the
2 minimum to maximum ratio spans the full gamut and do not result in loads that are
3 unusually spiked for the utility. There are plenty of other customers on the system with
4 similar load characteristics at every level.

5
6 **Q. Have you analyzed data specific to the NStar Companies?**

7 A. In discovery TEC requested similar information about NStar's large customer classes but
8 did not receive the responses in time for inclusion in this testimony.

9
10 **Q. Do you have any reason to believe that the results for NStar will differ from the**
11 **MECo results?**

12 A. No. NStar has several very large customers with generation who may exhibit different
13 characteristics, but they are on special tariffs to which the proposed standby rates would not
14 apply.

15
16 **Q. Do you agree with Mr. LaMontagne's contention that customers with generation**
17 **somehow are unusual in that the Company has to serve them "on an instantaneous**
18 **basis"? (Page 12)**

19 A. It is true that the Companies must be "ready-to-serve" on an instantaneous basis, but this is
20 true of all customers. The utility is also standing by, ready to serve all types of loads on an
21 instantaneous basis. For instance, any customer can flick a switch to turn on a bank of air
22 conditioners and expect to receive electricity through the distribution system. Or a school
23 may register high demands one month and practically none over a vacation week. Some

1 customers may have electric heat as a backup to heat pumps and operate only
2 intermittently. Or a vacant office park may find new tenants. It is discriminatory to
3 charge customers with generation extra for the same instantaneous service that other
4 customers routinely utilize.

5
6 **Q. Turning to the second part of your testimony regarding Mr. LaMontagne's**
7 **characterization of the distribution costs as "fixed", please give a short description of**
8 **the types of costs that are booked to distribution accounts.**

9 A. Distribution costs are booked to account numbers 360 to 373. These cost categories
10 include four types of facilities: substation equipment, where the voltage of the electricity is
11 reduced from transmission level to distribution voltage, usually 13.8 kVa; poles and lines
12 that deliver the electricity to the customer; line transformers which reduce the voltage to
13 the secondary level (usually 600V); and services and meters at the customer's premises.
14 Customers on the G-3 rates generally have their own line transformers, so are not
15 responsible for line transformers or services.

16
17 **Q. Why does Mr. LaMontagne include all distribution costs in the proposed standby**
18 **rates?**

19 A. On page 15 of his testimony, Mr. LaMontagne says that the costs associated with the
20 construction of a properly sized distribution and transmission system are fixed once they
21 are built. On page 18, he explains that he set the demand charge for standby customers
22 (which is applied to the customer's Contract Demand) to be equal to the distribution

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1 demand charge in the general service rate because the “costs attributable to providing
2 distribution service for the standby customer are predominately fixed, unavoidable”.

3
4 **Q. Do you agree with this characterization?**

5 A. No. By and large the distribution system is a shared resource. At the substation level,
6 loads are an aggregation of the loads of many customers. Since customers peak at different
7 times throughout the day and throughout the year, the aggregated load is highly diverse.
8 By diversity, I mean that the demand of the group as a whole is less than the sum of the
9 individual customer peak demands.

10
11 While it is possible that a substation is dedicated to one or a few customers, this is
12 generally not the case. For instance, in its 1998 FERC Form 1, Boston Edison reported 275
13 substation distribution transformers, serving approximately 667,000 thousand customers, or
14 approximately 2,400 customers per transformer. Further, as noted above, NStar has special
15 tariffs for its few very large customers who may substantively impact loads at the
16 substation level, and are not subject to the proposed standby rates.

17
18 Further, loads at the substation are not necessarily static. For instance, some of Boston
19 Edison’s substations are interconnected and the Company has the ability to dispatch loads
20 to alternative substations.

21
22 The lines and poles which deliver electricity to individual customers and the line
23 transformers reducing the voltage level are also shared by customers. For instance, Boston
24 Edison reported 59,260 line transformers in use in 1998, which were used by

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1 approximately 666,500 customers (Boston Edison had approximately 500 G-3 customers in
2 that year), or 11 customers per transformer.

3
4 Finally, I agree with Mr. LaMontagne that the costs of meters and services are fixed, and
5 that these costs are included in the customer charges in the general service rates.

6
7 **Q. Is it possible that there are customers that have dedicated lines and poles?**

8 A. Yes it is possible. But in general, under NStar's line extension policy, customers pay up-
9 front contribution in aid of construction (CIAC) for line extensions that are more costly
10 than the norm. For instance, in Appendix B of its Terms and Conditions available on
11 NStar's web site, the Company will expend up to a maximum of one and a half times the
12 estimated annual wires or delivery revenue for overhead construction. For large customers,
13 NStar can collect the full cost of line extensions. For instance, MIT informed me that it
14 paid for the full interconnection cost for its cogeneration facility of \$1.45 million.

15
16 **Q. Is this characterization of most distribution costs as shared reflected in the allocation**
17 **of costs to customer classes?**

18 A. Yes, it is. For instance, in Boston Edison's last allocated cost of service study in DPU 92-
19 92 which forms the basis of the current rates, the only distribution costs allocated according
20 to the number of customers are meters and services. Other distribution categories are
21 allocated on the peak of the aggregated classes, and so recognize the diversity of loads.

22
23 **Q. As a group, would you expect the backup requirements of customers with their own**
24 **generation to be a diverse load?**

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1 A. I do not have any data on this. But since a customer's generation may follow its own
2 production schedule and since the failure of a generating unit is a random event, I would
3 expect that backup loads have a high degree of diversity. In contrast, other intermittent
4 loads, such as air conditioning or back-up electric heat, are related to weather, and so I
5 would expect these loads as a group to be less diverse.

6
7 **Q. Turning to the third area of your testimony, please discuss the concerns you have with**
8 **the proposed rate design of the standby rates?**

9 A. My concerns are as follows:

10 Availability: NStar should include exceptions for three situations. First, the rates apply to
11 customers adding generation after the effective date of the rates, but this does not allow for
12 the long lead time of engineering projects. NStar should grandfather projects under
13 consideration as of the filing date. Second, the Availability clause does not recognize
14 customers who have already paid substantial contributions in aid of construction to the
15 Company. Third, in the event new customer generation serves new load as part of an
16 expansion project, there is no "lost" revenue for NStar. For instance, a new industrial park
17 may have a new Supplemental load of 1 megawatt and a new Standby load of 200
18 kilowatts. In expansion plans to serve these new loads, NStar will have the ability to
19 charge upfront for all or a part of the line extension, and so an on-going monthly charge is
20 unnecessary.

21
22 Cost Basis: The cost basis of the rates is a 12 year old cost study which may not reflect the
23 Company's current marginal or embedded cost. This does not send the appropriate cost

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1 signal to customers performing cost/benefit studies for new generation. As it stands,
2 NStar's proposal reflects additional revenue, not marginal cost causation.

3
4 Contract Demand: Customers are billed for their Contract Demand, regardless of their
5 actual requirements. This is a ratchet and unfairly overcharges generation customers. For
6 instance, a customer who supplies all of its own power will be billed every month for its
7 potential maximum demand in every month, regardless of actual usage. This is greater
8 than if the customer takes all power through the Company's distribution system, with the
9 normal fluctuation in monthly load.

10
11 Multiple Units: NStar will set the Contract Demand at the generating capability (or the
12 expected output of the generation unit(s). However, this overstates the amount of backup
13 that is taken by the customers with multiple generation units. This is because the
14 likelihood of all units failing at the same time is small. In general, the greater the number
15 of units at a customer's premises, the greater is the reliability. NStar should quantify this
16 increased reliability and include a reduction factor for the Contract Demand in the standby
17 rates.

18
19 Double Counting of Revenue: The proposed rates would provide additional revenue to the
20 Company, but no offsetting reductions for other customers are provided. Mr. LaMontagne
21 claims that other customers are subsidizing generation customers (see page 17) but has not
22 proposed to make them whole. Thus, the Company will be collecting twice for part of its
23 distribution system.

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2 **Q. What have you concluded regarding the NStar's proposal?**

3 A. The Department should not approve any of the rates in NStar's January 16, 2004 filing.
4 NStar has not demonstrated that the customers with generation uniquely impact its
5 facilities. Nor has it shown that charging such customers the full distribution charge is
6 appropriate. Finally, the rate design is flawed and may negatively impact generation
7 purchase decisions of customers.

8

9 **Q. Does this complete your testimony?**

10 A. Yes, it does.

11

12

13 *Q:\rmf\Standby Rates\direct testimony\saunders testimony 16 mar 04.doc*

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Elaine Saunders is a utility economics and costing specialist with substantial experience in rate design and unbundling, stranded cost analysis, and rate schedules. At La Capra Associates, Ms. Saunders' specialization has included all aspects of electric utility costing, restructuring issues and the preparation of financial reports. As a former Division Manager of Rates at Boston Edison Company, she has extensive experience with all aspects of utility rate design, costing, and terms and conditions of service. Ms. Saunders has 20 years of experience in the energy industry.

ACCOMPLISHMENTS

Evaluated the economic impact of the Massachusetts Institute of Technology's cogeneration facility due to Cambridge Electric Light Company's backup rates and exit fees, and estimated the stranded costs associated with leaving Cambridge's system;
Prepared affidavits for various Federal and Massachusetts state forums.

Evaluated competitive electric supply options for large public agencies in New York and Massachusetts.

Performed an operational assessment of the City of Boston's Street Lighting Program, evaluated the street lighting system owned and maintained by Boston Edison within the City, and assessed the optimal configuration of street lighting ownership and maintenance for the City's Office of Budget Management.

Prepared an evaluation of the City of Boston's census for accuracy and completeness.

Evaluated electric supply options for Harvard University's Allston Campus and assisted in negotiations for contract terms.

Assisted the Massachusetts Department of Energy Resources in preparing positions, testimony, and analysis on many issues, including utility mergers, divestitures and stranded costs.

Prepared various financial and revenue requirement forecasts, marginal and embedded cost studies, rate analyses, rate unbundling, and expert testimony for several small investor owned electric utilities and cooperatives.

Prepared revenue requirements and cash flow forecasts for the Vermont Electric Cooperative for bankruptcy workout negotiations. Prepared business plan for VEC for its

presentation to rating agencies for bond ratings. Developed aggregated cost data for VEC's proposed merger with Citizens Vermont Division.

Prepared testimony on behalf of the Texas Retailers Association in a generic docket regarding standardized classifications and rate design for retail access.

Prepared testimony and provided assistance to the Staff of the Arizona Corporation Commission regarding unbundled rates for Arizona's six cooperative electric utilities.

Prepared an estimate of stranded generation costs for Atlantic City Electric on behalf of the New Jersey Division of the Ratepayer Advocate.

Evaluated the unbundled rate filings of several Pennsylvania Utilities in the restructuring proceedings and recommended proposed alternatives on behalf of the Pennsylvania Office of the Consumer Advocate.

Supervised the activities and personnel of Boston Edison's Rate Research Group, including establishing plans and goals, administering the budget, providing technical direction to a staff of analysts and preparing position papers for upper management.

Managed all activities associated with electric rate research, rate administration, marginal costing and wholesale rates and contracts as Manager of the Rate Research Division for Boston Edison Company. Oversaw the preparation of filings with the Massachusetts Department of Public Utilities and other regulatory bodies, and managed associated tasks such as the preparation of data requests and briefs.

Taught college level mathematics courses at Bentley College (Waltham, MA) and while in graduate school at the University of California, Berkeley.

EXPERIENCE

Bentley College, Adjunct Faculty, Mathematical Sciences Department – Sept 2002 - present

Independent Consultant - April 2001 - Present

La Capra Associates - Consultant, January 1994 - April 2001

Boston Edison Company

April 1991 - January 1994: Division Manager, Rate & Load Research Department

October 1981 - April 1991: Various rate analyst positions; Software programmer/ analyst.

Southern Pacific Transportation Company

1979 – 1991: Software programmer/analyst

EDUCATION

M.A., University of California, Berkeley, 1979

Mathematics - Concentration in Functional Analysis

B.A., Clark University, 1975

Mathematics - Awarded Jonas Clark Scholarship, member Phi Beta Kappa